35/10 May 1970

# Soil Conservation

*Devoted to the wise use of land and water resources*

**Conservation by nonfarm land users**

Examples from many states

Soil Conservation Service, U.S. Department of Agriculture

# Soil Conservation

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Vol. 35 No. 10 May 1970



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## *Land users . . .*

Everybody is a land user.

The suburban householder tending his garden; the rural resident commuting to a job in town; the public school or hospital improving its grounds—all are using their share of the land as space and consuming their share of its products.

Every citizen thereby shares in creating the kind of environment in which we all live. Happily, many urban and suburban people, individually and through their local governments, are assuming responsibility for the way they use land and water resources.

This issue of **Soil Conservation** presents a collection of examples of nonfarm conservation activities contributed by SCS fieldmen.

**Community action:** One way communities deal with community problems is through their local governments.

Gwinnett County, Ga., hopes to forestall future flood damage by marking the boundaries of flood plains and restricting building within the flood-hazard district (p. 219).

New Hampshire has a law requiring soil information as a basis for permitting sewage-disposal systems near surface waters (p. 221).

SCS technical information is being used in administering these regulatory measures, as in many similar instances.

**. . . and facilities:** Schools, churches, and other institutions, like individuals, have soil and water problems on their properties.

We have accounts this month of how SCS is helping a convent in Wisconsin (p. 222), a public housing project in West Virginia (p. 225), and a school system in Missouri with such problems.


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SOIL CONSERVATION is the official magazine of the Soil Conservation Service, published monthly by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business. Use of funds for printing this publication approved by the Director of the Bureau of the Budget July 17, 1968.
**Reprint permission:** Contents of this magazine may be reprinted without special permission. Credit is not required but is appreciated. Photos available on request.
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**Subscription:** $2.50 per year, $3.25 foreign. Single copy 20 cents. Discount of 25 percent on orders of 100 or more sent to same address. Order direct from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

**An answer to flooding on urbanizing watersheds . . .**

# A flood hazard district

**By Earl Jenkins**
Area engineer, SCS, Decatur, Ga.

A flood-hazard district with boundaries physically marked on the ground is one answer the people of Gwinnett County, Ga., are posing to the threat of increased flooding caused by advancing urbanization.

A million-dollar flood in 1963 on famous Peachtree Creek in Atlanta alerted citizens of surrounding areas to the destructive potential of streams hemmed in by buildings and paving.

Following the flood, property owners along Peachtree Creek arranged through the Atlanta Soil and Water Conservation District for a study of their problem by the Soil Conservation Service under provisions of Public Law 566.

An on-the-ground survey of the watershed revealed that urban development had advanced so far that installation of floodwater-retarding structures would not be feasible. Without the structures, elimination of flooding by channel improvement also would be impractical. The study concluded that there was little hope for alleviating flooding on this urbanized watershed. The hydrologic analysis indicated that recurrence of floods similar to the one in 1963 might be expected on the average once in 3 or 4 years and that larger floods would undoubtedly occur from time to time.

The SCS analysis of Peachtree Creek's problems moved the commissioners of Gwinnett County, on the outskirts of Atlanta, to look at their own prospects for the future.

Through the Upper Ocmulgee River Soil and Water Conservation District they obtained technical guidance from the Soil Conservation Service. They also employed a planning consultant to prepare recommendations for updating the county's zoning regulations.

The resulting plan creates a flood-hazard district including land subject to periodic flooding. It limits land use within the district in ways to avoid damage to persons and property and to preserve the capacity of channels and flood plains to carry runoff waters. A referendum in the county approved the regulations and made necessary changes in the zoning ordinances.

The flood-hazard district regulation permits agricultural use of flood plains and provides for other uses with specified safeguards. Pub-

*Apartments built on fill on a flood plain constrict the natural watercourse and thereby increase the hazard of flooding.*

*An RC&D Project crew checks elevation of a boundary marker for the flood-hazard district.*

lic utilities, outdoor advertising signs, roads, parking areas, and recreation facilities are allowed provided they are adequately designed and will not obstruct natural waterflow. Dams must be constructed in accordance with specifications of the Soil Conservation Service or the U.S. Army Corps of Engineers.

Meantime, plans had been developed for a project measure in the Gwinnett County Resource Conservation and Development Project to determine and mark the flood-hazard boundaries on the land. Fortunately, one of the primary streams in the county, Suwanee Creek, had been planned as a watershed project under Public Law 566. With little additional survey information, the 100-year flood line for this stream was established for Suwanee Creek. Soil Conservation Service engineers assisted the Gwinnett County Engineering Department in setting markers at all major road crossings. Permanent concrete posts with stamped bronze plates on top clearly show the elevation of the 100-year frequency high waterline.

The Soil Conservation Service is now working on a map of the limits of flood hazard for the rest of the streams in the county. The U.S. Army Corps of Engineers has flood-plain information reports for some of the major streams in the county. Other streams have been planned under the Watershed Protection and Flood Prevention Act. This information, supplemented by the recently published soil survey of Gwinnett County, will be the basis of a zoning map of all the flood-plain lands in the county.

When all the markers are in place, any prospective builder can easily determine which sites are within the boundaries of the flood-hazard district and subject to restrictions on development that might aggravate future flood damages. ◆

*Urbanization of the watershed increases the flood hazard to fashionable homes along Peachtree Creek.*

# Shorelines Law guards surface water quality

**By Sidney A. L. Pilgrim**
State soil scientist, SCS, Durham, N.H.

A law regulating sewage-disposal systems near shorelines, enacted by the 1967 session of the New Hampshire Legislature, puts soil survey data to use in safeguarding the quality of surface waters in the state.

The law requires applicants to give soil survey information along with results of other onsite investigations as a basis for permission to install new septic tanks or other disposal systems near shorelines of the state's many lakes and streams.

During the past 3 years, SCS offices in the state's 10 counties have answered more than 6,000 requests for soil survey data. Approximately 85 percent were for individual building lots. Subdivision development accounted for the remainder. Information was provided to individual landowners, developers, private engineering firms, contractors, and others.

Prior to the Shorelines Law, surface water in many parts of the state was being polluted by drainage from cesspools and dry wells and by direct discharges of domestic wastes. Now disposal-system plans must be reviewed by the State Water Supply and Pollution Control Commission before they are installed.

"Our staff technicians make intensive use of soil data as they review applications," says Russ Eckloff, associate sanitary engineer for the commission. "Soil properties, such as depth to seasonal water table, depth to underlying hardpan layers, and permeability rate, are carefully cross-checked with the design. Plans that do not adequately account for soil limitations are returned for modification."

Modern soil surveys have been completed for four of the 10 counties. In these, requests can be handled by local SCS offices without additional assistance from soil scientists. In three of the four surveyed counties, landowners may obtain necessary information directly from published surveys.

Information in the other six counties is obtained in the course of routine survey operations. Three of them are in a progressive mapping status.

District conservationists report that more requests for other types of technical assistance from SCS come in the wake of the initial contact required by the Shorelines Law. ◆

*Lake Winnipesaukee's multiple shorelines invite recreationists and associated pollution. Dark puddle of effluent from sewage system in shallow soil would be avoided by proper site selection.*

*Foaming waves rip soil from a Lake Michigan shoreline slope.*

# A plan to still the waves on lakeside beach

**By Paul A. Johnson**
Area engineer, SCS, Waukesha, Wis.

On a clear day you can see forever . . . muddy water.

Seeing the threat of beach erosion to their convent site on the shore of Lake Michigan, the Sisters of St. Dominic in Racine County moved the location of their planned buildings 275 feet inland and installed erosion-control measures planned with the aid of the Soil Conservation Service.

Their 900 feet of treated shoreline is only a fragment of 200 miles on Lake Michigan in Wisconsin that shares similar problems. At some locations the shoreline is receding at the rate of 6 feet a year. The U.S. Army Corps of Engineers estimates that more than 100,000

*The St. Dominic Convent's lake front is protected by rock groins and riprap and a grassed slope.*

cubic yards of sand migrates across the stateline from Wisconsin to Illinois every year.

The Racine County Soil and Water Conservation District board of supervisors agreed to make assistance available to the religious order when Sister Joseph Ellen, treasurer general, laid the problem before them in 1966. SCS conservationists and engineers helped the owners prepare a conservation plan for the site of the proposed $5-million convent and chapel complex.

Following the plan, the sisters had quarry stone riprap placed at the toe of the slope to dissipate the energy of the waves. Nine stone groins perpendicular to the shore now trap littoral drift and are building up a sand beach. The groins average 70 feet in length and are spaced about 100 feet apart. In 3 years, they have trapped and retained enough sand to cover the riprap and most of the groins.

The upper slope presented an entirely different problem. There surface water had cut gullies deep enough to bury a truck, and underground seepage had caused earth slides. The grounds terminated in an almost vertical bluff 35 feet high, a severe safety hazard as well as a threat to buildings.

Bulldozers and draglines were put to work on the bluff, and the slope was cut to a stable angle of three to one. A perforated subdrain installed below the zone of seepage across the entire slope eliminated ground water.

Surface water was redirected away from the slope by diversions, then channeled into catch basins and released through pipe conduits. This required major regrading of 6 acres of land between the buildings and slope. After the topsoil had been replaced, the steep slopes were sodded and the flatter areas seeded with Kentucky bluegrass.

The Sisters of St. Dominic are now putting the finishing touches on their convent with confidence that on a clear day they can see clear water on their beach. ◆

**Satellite conservation problems . . .**

# Tourism and recreation give new turn to planning resource use

**By John A. Walker**
Area conservationist, SCS, Knoxville, Tenn.

The mobile American, constantly searching for a plot of ground in Countryside, U.S.A., is placing increasing demands on soil conservation districts for advice and consultive assistance.

This demand for rural nonfarm help is growing everywhere, but in Sevier County in the shadows of east Tennessee's Smoky Mountains, it has created a challenge to the Sevier Soil Conservation District.

Six million tourists come through Sevier County annually. Many who come to visit the scenic mountains return to buy a little of the scenery to call their own. County income from tourism is about $70 million a year, 10 times that from farming.

The development of rural land for recreation or tourism creates "satellite" problems of conservation.

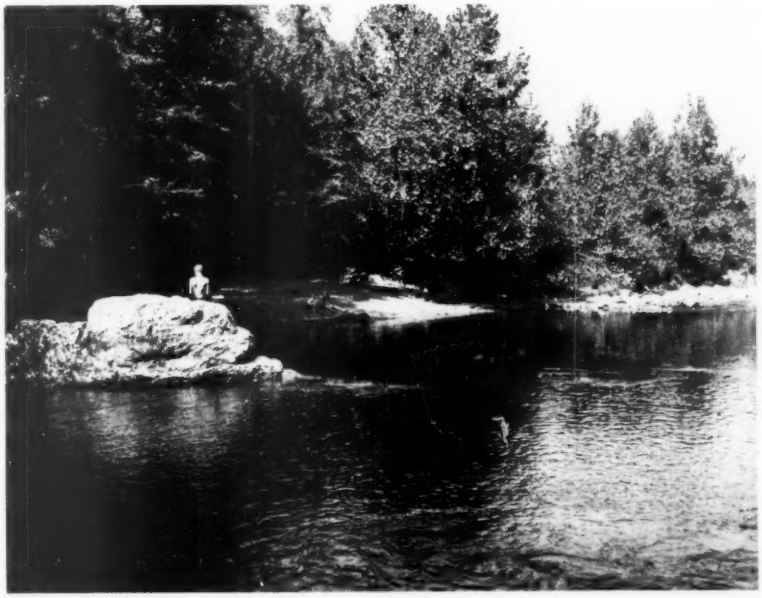
William C. Boruff, Soil Conservation Service district conservationist, estimates that he and his staff spend more than half their time helping people develop natural resources for tourist recreation businesses or for their own enjoyment.

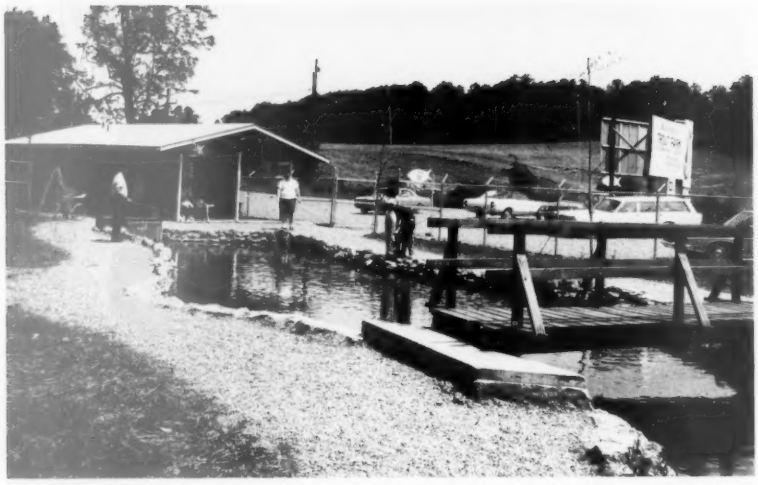
### Resources for enjoyment

"We have been called on to help plan conservation measures on campsites, stabilize roadbanks, evaluate soil for septic tanks, and select sites for all sorts of recreational development," Boruff said.

The Henry Price story is typical. Price, of Washington, D.C., bought 75 acres of scenic land on Upper

*Mountain streams and woods entice urbanites to the countryside.*





*A trout farm with "fish-out" lake is part of a rural recreation development.*

Middle Creek in 1959. In helping Price carry out his conservation plan as a cooperator with the conservation district, Boruff provided such unconventional technical services as helping select land for a log cabin, stabilizing a new road, and building a lake for scenic value and fishing. "Regular" conservation practices, such as reforestation of idle areas, have been applied with district and SCS assistance.

### Old cabins and a barn

Another very unregular district cooperator is W. A. Bell, a retired county agricultural agent. Bell bought a farm near Gatlinburg on one of the main tourist routes. The farm had two old log cabins and a barn. Bell turned the old barn into a hotel, built a lake and started a trout fishing operation, and began cashing in on the recreation market.

He had problems of land use, drainage, and lake site selection that brought him to the district office.

Reelie L. Maples, an experienced motel owner and banker of Gatlinburg, is developing a 100-acre tract of mountain scenery near the entrance to the Great Smoky Mountains National Park. Here, road construction created the problem of stabilizing the roadbanks. Plants had to be selected and plans made for seeding, mulching, and managing the cuts.

### Two lakes built

Two lakes were surveyed and built. Scenic values were considered along with regular technical details of construction and revegetation. Maples wanted wildlife, so the selection and establishment of the right food and cover plants had to be considered.

"Benefits from these privately developed enterprises do not stop at district boundaries," says B. M. Trundle, chairman of the Sevier Soil Conservation District board of supervisors. "People from several counties around commute to jobs at these hotels, motels, riding stables, and fish-out lakes. Modernizing the district program to include assistance with the resource aspects of these developments places the district board in a place of great responsibility in the economic growth of the county."

In addition to the farm and rural nonfarm workload, the district is helping town leaders develop the industrial potential of Sevierville, the county seat. SCS conservationists, working through district-municipal agreements, have given help in seeding, drainage, soil surveys, sewer development, and many other conservation-related problems in Sevierville's new industrial park.

The Sevier District office has become known as a source of information for any land use problem, no matter how unorthodox. ◆

## Conservation association wins antilitter award

Antilitter activities of the Jemez Mountain Wildlife and Conservation Association in 1969 won a Certificate of Award from Keep America Beautiful, Inc.

The Jemez Soil and Water Conservation District recently sponsored a dinner honoring the association at Jemez Springs, N. Mex., at which SCS State Conservationist Kenneth Williams made the presentation. SCS had nominated the association for recognition.

In addition to the antilitter and general cleanup campaign, the association carried on projects in fish and wildlife restoration, gun safety instruction, and erection of historical markers. Now there is a new sanitary landfill in Jemez Springs, and the roads are provided with litter barrels maintained by the group.

In August 1966 the association entered into a cooperative agreement with the Jemez Conservation District. SCS then helped the club develop a conservation plan for the Jemez and Guadalupe valleys. Cooperation of the village of Jemez Springs, the New Mexico Game and Fish Department, New Mexico Highway Department, U.S. Forest Service, and the Boy Scouts contributed to the program's success.—RICHARD BARBER, *district conservationist, SCS, Bernalillo, N. Mex.* ◆

# Erosion-control program comes to rescue of housing project

**By Moses Taylor**
Soil conservationist, SCS, Moundsville, W. Va.

Children in the Moundsville Housing Development, Moundsville, W. Va., used to be able to play house in backyard gullies. But their housing situation changed after concerned citizens and officials moved in to control erosion.

Fescue and crownvetch now cover most of the 20 to 30 percent slopes in the 10-acre public housing project. For 3 years, the tract was a critical sediment source. Mud holes, craters, and gullies scarred the site soon after building first exposed the highly erodible silt loam soil in January 1966.

By June 1966—more than 6 months before the project was completed—people began to move in. Their traffic added to the disturbance initiated by bulldozers. All 75 apartments were occupied a year later when erosion was at its worst. Because of limited funds, landscaping and the roof drain system could not be completed. Erosion eventually ruined final grading on 5 acres of bare soil around buildings and streets after construction was completed in January 1967.

Alarmed by conditions during and after construction, the Moundsville Housing Authority and the Northern Panhandle Soil Conservation District joined in two erosion-control projects.

The first was begun in the fall of 1967. Plans for grading, adding topsoil, and seeding the site were prepared by the Soil Conservation Service and the county extension agent. The city of Moundsville loaned earthmoving equipment. Organic matter was donated by the local mushroom plant. Six teenage boys from the local Neighborhood Youth Corps put in 240 man-hours hand seeding some of the lawns in the development.

The pilot project convinced local officials that the job could and should be done, but that it would take more than volunteer help and a few dollars' worth of seed. After another series of meetings, action began again in September 1968.

The housing authority contracted to have the site regraded and the drainage system completed. Then a district labor crew, headed by District Supervisor Hubert L. Mason, spent 431 man-hours carrying out a plan developed and supervised by the Soil Conservation Service. It took 500 pounds of seed; 33 tons of lime; 2,500 pounds of fertilizer; 1,500 cubic yards of topsoil; 600 bales of straw; and 500 yards of fiber netting.

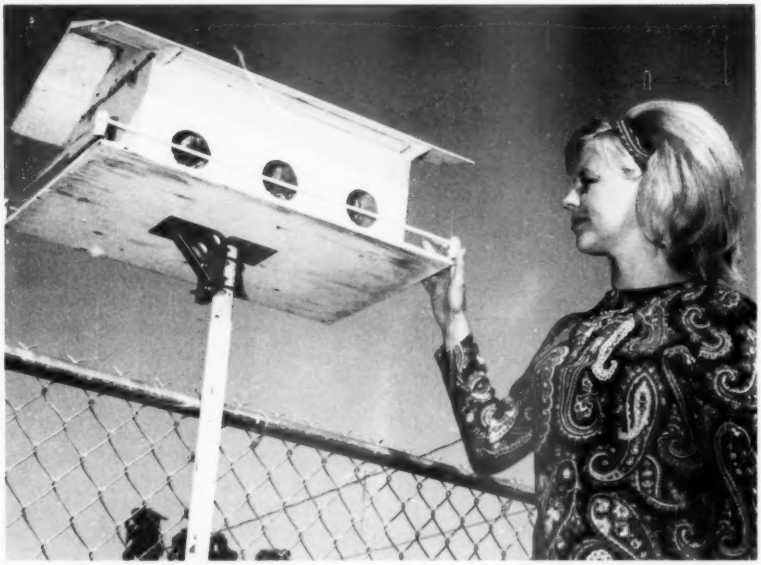
Today only minor maintenance is needed to keep the stabilized slopes in good condition. Determined to avoid similar problems in the future, the Marshall and Ohio County planning commissions have established cooperative relations with the Northern Panhandle Soil Conservation District to make soil surveys and other technical information available in advance of starting new developments. ◆

*Francis Kolz, district crew member (left), and Moses Taylor, SCS soil conservationist, lay netting over a critical area seeded and mulched in November 1968. Below, Kolz looks over a finished job consisting of straw mulch, Bemis netting, and 2 by 4 planks set into a steep slope.*

**A welcome for summer visitors . . .**

# Homes for purple martins

**By George C. Marks**
Assistant state conservationist, SCS, Little Rock, Ark.



*Mrs. Jannelle Davis, SCS clerk-typist, observes one of the purple martin houses put up in Fort Smith, Ark. Its telescopic pole facilitates cleaning.*

A sudden influx of 28,000 temporary residents posed no housing problem for Fort Smith, Ark., last year. The visitors repaid their host community with an insect-control program and months of free entertainment.

Purple martin flocks didn't just happen to descend on the Fort Smith area. They were attracted by the kind of nesting environment provided by local people. Many knew that the birds preferred communal living and people-watching, so they built multiple family units in open spaces near human habitation.

It all started with a plan developed by Pat Burke, SCS biologist, and backed by the Sebastian County Conservation District.

With the help of local news media, a 5-month information campaign convinced townspeople that martins could and should be invited to Fort Smith.

The first part told about the martins' insatiable appetite for flying insects, their cheery chatter, and graceful flight patterns.

The second phase of the information program explained the birds' preferences for apartment living and certain building specifications and neighborhoods.

In all, 22 feature stories, many of them illustrated, were carried by the daily newspaper. Local television and radio stations aired more than 58 spot announcements extolling the virtues of purple martins. An outdoor advertising agency cooperated with local business firms to finance three highway billboard signs. Civic organizations and bird and garden clubs in Fort Smith and neighboring towns presented educational material at regular meetings. "Purple Martin Week" was proclaimed by mayors of both Fort Smith and Van Buren, and "It's Purple Martin Time" buttons were handed out. Exhibits at the county fair and the annual horticulture show rounded out this phase of the effort.

Increased public interest in martins brought on stage three as planned. Local business establishments were glad to stock ready-made martin houses. One company sold more than 600 during the campaign. Many people preferred aluminum houses, which are available from several commercial sources. They are light, easy to install, and have a long, useful life.

Some, however, enjoyed building their own martin houses, even though they saved little or no money in the long run. For home craftsmen, the district financed a simple set of plans and distributed at least a thousand free copies.

By conservative estimate, there were 28,000 temporary residents of the Fort Smith area on any given day. And it is nice to know that the friendly, useful creatures will return each year after their annual vacation in Brazil. ◆

### Specifications for a martin house

Exterior design seems to be of little importance, but individual apartments should measure 6 inches each way with a 2½-inch entrance hole 1 inch above the floor level. The floor should extend to form a porch about 3 inches wide with a guard rail to protect young birds before they learn to fly. To keep houses cool, paint the exterior white and provide a central ventilation shaft opening into a screened attic. Houses should be placed in open sunlight at heights of 12 to 24 feet, depending on the proximity of trees and other obstructions to flight.

# India joins 'green revolution' with plans to boost food yields

**By Eugene W. Shaw**
Irrigation agronomist, SCS, Bellary, India

High-yielding, short-season grains, improved cultural practices, and efficient irrigation methods are combined in the Mysore Regional Pilot Project to increase grain production in people-rich, food-poor India.

The project, established jointly by the U. S. Department of Agriculture and the U. S. Agency for International Development, became the first of three such projects now cosponsored by the Indian Government and the state government.

Since late 1967, the Soil Conservation Service staff, under the leadership of Guy W. Nutt at Bangalore, has been surveying problems and preparing a project plan. SCS staff members in Mysore are Eugene J. Pope, engineer; Gerald Kester, soil scientist; and Eugene W. Shaw, agronomist. Their headquarters are at Bellary, in the Tungabhadra Irrigation Project.

From the beginning, the project plan emphasized onfarm demonstrations. By posting the Indian staff and American counterparts in early 1969, the first such demonstration was underway the following June.

This demonstration, which is not only the first but also the largest to date, involves all irrigated areas of Manur Village in Bellary District and its administrative subsidiary, Manur Camp.

More than 700 acres of irrigated land is involved in a revised water regime, based on comprehensive needs, plus the use of new short- and mid-season varieties of rice, wheat, and sorghum. The demonstration requires cooperation from Mysore's Department of Public Works (irrigation) and Department of Agriculture, India's National Seeds Corporation, and the project staff.

The demonstration area was selected because of its location at the lower end of a distributary, or canal. Normally it lacks sufficient water because of ditch losses, and development there has been restricted in the past to about one-half of the planned acreage.

Starting in June 1969, all rice farmers in the demonstration area agreed to sow only Padma, a new high-yielding, early maturing variety of rice. The project supplied seed with the cooperation of the National Seeds Corporation. Followup studies on nearly 160 acres checked for insects, diseases, and fertilizer requirements—a phase closely observed by the state officials and local farmers alike.

In October 1969, the waterflow was shifted to another area, almost 60 days earlier than possible with traditional long-duration varieties. At that time 400 acres of Mexican wheat and hybrid sorghums were irrigated, using improved water-application techniques.

Conservation planning, with an initial meeting of all landowners, began in August for the areas to be irrigated in October. Later, team members made individual contacts with completed topographic maps.

The third proposed irrigation season commences in February—the beginning of summer—and, because of the normally high seasonal temperatures, only 200 acres will be irrigated.

Water distribution, planned to meet plant needs, is a new concept to India. Hopefully, this demonstration will produce major changes in seasonal distribution and more efficient use of available water in India's promising Mysore state. ◆

*Gerald Kester and Eugene J. Pope (center, left and right, respectively) confer with Indian officials during a project meeting at Manur Camp.*

*The biology class (left) takes an early look at the new pond, and a vocational agriculture class (above) gets instruction on preparing the seedbed for a grassed waterway.*

**"Just a little puddle would help . . ."**

# Outdoor learning areas give teachers a chance

**By Millard Blaine, Kelly Rogers, and Harlan Wingfield**

District conservationist, SCS, and assistant superintendent and science specialist, Knox County Schools, Edina, Mo.

It all started with two science teachers wishing for a biology pond.

"Just a little puddle on the school grounds would help," said William Frazee to his colleague, Mrs. O. M. Gillaspy.

Mrs. Gillaspy called the attention of school officials to the difficulty science teachers were having in teaching biological sciences, chemistry, and conservation effectively inside the classroom. The superintendent and his staff began looking for ways of providing the science department with its nature pond. Title III of the Elementary and Secondary Education Act seemed to offer a possible source of funds.

Leaders in various activities involving young people, agricultural groups, service groups, and state and federal agencies were called in to the school for consultation. Each group was asked how it might use the facilities if they were available.

Soil and water conservation leaders, state wildlife conservation representatives, Boy Scout groups, Girl Scout groups, and others expressed interest in the proposal. Thus encouraged, the Knox County R-I School District prepared a project application, and it was approved for assistance with Title III funds.

The Soil Conservation Service then provided technical service and advice in planning the pond and other work on the area. Waterways and terraces were constructed and several grass plots seeded to demonstrate ways of controlling erosion.

Students use the pond to study basic biological, chemical, and physical features of an aquatic environment. They observe and identify flora and fauna and collect data on water pressure, turbidity, sedimentation, acidity, and oxygen content.

*Left, SCS Conservationist Millard Blaine (without coat) discusses plans for a wildlife habitat area with Dr. John Ross, superintendent of Knox County Schools (left) and Dr. Kelley Razen, assistant superintendent of the schools. Below, Vocational Agriculture Teacher Eldon Ewall discusses minimum tillage with his class of 1967 and 1968.*

Here, vocational agriculture classes can see conservation in action and observe the effects of good practices on the land. They can study how waterways and terraces control erosion, and they can gather information on the growth of grasses, crop resistance to herbicides, soil pH, and methods of determining forage yield.

Many small animals have come to the school grounds since the project was started. Rabbits, squirrels, and birds, attracted by the wildlife habitat, are enjoyed by the students.

Other classes, such as social studies, art, industrial art, and history, make use of the outdoor laboratory, too. Eventually the entire faculty of the Knox County school system will be instructed in the use of the area.

Classes will be held during the winter. Knox County school administrators believe students will benefit more from their outdoor laboratory if it is used the full 9 months of the school year instead of only when the weather is good.

Schools in other counties have asked to use this outdoor classroom. The Knox County Soil and Water Conservation District intends to use it as a main stop on conservation tours to illustrate practical and usable structures and methods of soil and water conservation.

A further cooperative program between the Knox County R-I School District and the soil conservation district is the construction and development of a 15-acre lake and other conservation demonstrations on a 449-acre farm owned by the county.

To let the public see many phases of conservation in action, the development of this area began with a field day that lasted 2 days. District supervisors and county court and many local individuals and businesses worked together with the Soil Conservation Service, Extension Service, and the Agricultural Stabilization and Conservation Service to make the field day a success.

The county farm has the same demonstrations as those at the high school. In addition, a nature trail will wind through 20 acres of good timberland. Here students will be able to study the plant and animal life of a typical Missouri forest. Conducted tours by a science specialist will be available for all classes. Research can be carried on by interested students. A brochure that explains each stop on the tour will be available for students and teachers. Public and private organizations will be encouraged to tour this facility.

The outdoor laboratory at Knox County High School and at the county farm give Knox County a modern and effective way of teaching science and conservation. ◆

# A money-making way to 'play the horses'

**By George W. Yates**
Staff conservationist (recreation), SCS, Jackson, Miss.

Horseback riding is an outdoor recreation activity that offers farmers opportunities for supplemental income—especially those with a sizable acreage of developed pasture. City and town dwellers need places to keep and ride their horses safely.

Riding for recreation is enjoyed by Mississippians of all ages, but perhaps is most popular among teenagers.

Most horseback riding is simply unorganized pleasure riding. Many enthusiasts also take part in "trail rides," belong to riding clubs and "sheriff's posses," and participate in rodeos and other competition events.

*Riders enjoy a trail developed by a conservation district cooperator near Orange Grove, Miss.*

### Many new stables

This activity has resulted in the establishment of many commercial horse stables throughout Mississippi. In the vicinity of Jackson there are at least 10, many of which have more business than they can handle.

Taylor's Ranch in south Jackson, Miss., owned and operated by Mr. and Mrs. W. E. Taylor, has been in business for 2 years. The Taylors keep 10 or 12 horses most of the time, although Taylor has other full-time employment.

"We got into this business after making arrangements for our own five horses. It just grew from there," Taylor says. "We really don't have enough room for all the horses and are planning on building a new barn with at least 20 stalls."

The increase in horseback riding has stimulated the horse-stabling business.

### 4-H program expands

The increase in horseback riding has also stimulated the horse stabling business in delta counties. John R. Fulcher, Washington County agent, reports that three horse-boarding stables have opened on the outskirts of Greenville in recent years.

"We added horses as a project in our 4-H Club program about 5 years ago, but there was no interest in it for a year or two," Fulcher says. By 1968, however, horse proj-

ects were the most popular among 4-H clubbers.

"Furthermore, horseback riding is usually a family affair, not just limited to the 4-H member," Fulcher says. "The family usually has at least one or two other horses."

### Horses go to college

This seems to be supported by the fact that many college students take their horses to school with them and create an unusual demand for facilities there. So many Mississippi State University students have horses that at least three boarding stables have been opened nearby.

Following many requests for such facilities, W. P. Sudduth, Starkville, Oktibbeha County Soil Conservation District commissioner, recently built a new horse barn. Now he stables more than 20 horses for college students on a monthly fee basis. Sudduth was already in the dairy and beef cattle business and had a considerable acreage of pasture.

T. A. Mauldin, SCS, Starkville, says Sudduth also opens all his pastures to the riders. He is considering providing a system of riding trails over most of his large farm.

### Necessary facilities

Fees for boarding and stabling horses depend on the care and services provided. Some stables furnish feed, pasture, medication, training, riding lessons, and stalls in various combinations. Rates generally range from about $25 a horse a month for basic needs to as high as $50 when all or most of the services are included.

At any rate, stabling riding horses can be a money-making sideline for many farmers in Mississippi, depending on present layout and farming system.

SCS can help plan and develop pastures, recreation areas, and other facilities for boarding and riding horses. Those with good locations who are already in the livestock business and have plenty of pasture can cash in on the horse's comeback. ◆

# Reclaiming the heritage of old mill dams

**By Richard L. Pratt**
Engineering specialist, SCS, Acton, Mass.

Conservation districts in Massachusetts receive many requests from town commissions, sportsmen's clubs, and private landowners for assistance in renovating old mill dams to make impoundments useful for wildlife and recreation.

Massachusetts, like other Northeastern States, is dotted with mill ponds and dams that supplied power to grind grain, saw lumber, and operate small factories, a hundred years or more ago. The old mills have long since vanished, but the dams occupy choice locations, and local communities want to convert them to modern uses.

The Soil Conservation Service usually limits its assistance to preparing a reconnaissance report on the structure and making recommendations based on the hydrology of the stream and the physical features of the site. Conservationists and biologists may also help plan the development of wildlife habitat and recreation facilities.

### Yesterday's design

A typical old mill dam may be as much as 300 years old. It usually has several square miles of drainage area, since mill operation depended on a high base flow and an adequate water supply stored from surface runoff. In most cases the original structures have been repaired or replaced.

Most of the dams are of the open-weir type, constructed of hand-placed stones, concrete, or timber. They usually are less than 10 feet high and 10 to 12 feet wide at the top. Side slopes, both upstream and downstream, are vertical and retained by stonework. The space between the two walls was filled with rocks, boulders, earth, and other available material. Side emergency spillways were not used. The mill race provided some extra discharge capacity in times of high water.

Most of these old dams leak, and many principal spillways have been washed out. Tree roots often penetrate or undermine the fill, resulting in piping out of adjacent material and eventual collapse of the unsupported structure.

In most instances restoration is neither simple nor inexpensive. Temporary patchwork is difficult and usually results in leakage or failure in another part of the dam.

### Replace or rebuild

If the old structure is in a high-hazard location, the SCS recommendation usually is to build a new dam with a weir-type overfall having a large discharge capacity. Flood storage is not significant in most cases, and the storm flow must be discharged by the structure.

In less hazardous situations, the existing dam may be reinforced. An impervious blanket of fill is placed against its upstream face, with a 3 to 1, or flatter, slope and a minimum top width of 10 feet. A core trench to impervious material should be excavated if necessary. A principal spillway should be an overfall structure, as for high-hazard locations. A graded-gravel filter may be placed at the downstream toe to lower the hydraulic gradient through the fill and to prevent piping of finer dam material.

By sound renovation and well-planned development, a heritage from New England's historic past becomes a prized part of today's living environment. ◆

*Conservation in action...*

# Contours fix property line

**Minnesota**

Rural housing has a habit of cropping up almost anywhere, but it isn't often that you'll find a home occupying an odd area in a contour-stripped field.

When Conservation District Cooperator Ben Posch sold his farm and wanted to get closer to town, he propositioned Arnold Newman, a fellow cooperator in the Morrison Soil and Water Conservation District of Minnesota, to sell him a 1-acre odd area along the blacktop road. Newman agreed to sell if they could locate the property boundary on the contour line. They did! Posch got an attractive building site and Newman did not have to disturb his terraced and contour strip-cropped field.

The Posches have planted pine trees back of the house on the contour property line and as a screen along the road. "We like the location and enjoy the view," Posch said.

Newman established a complete erosion-control system on his farm 5 years ago. His crops reflect good husbandry of the soil, and the broad sweeping contour lines add to the beauty of the countryside. Posch's country home fits the modern concept of good land use.—RUSSELL V. JONGEWAARD, *district conservationist, SCS, Little Falls, Minn.*

*The Poaches' contoured homesite.*

**Texas**

## Small-fry farmers find Fischer's Fun Farm fun

On land where wagons once hauled good blackland cotton W. C. Fischer's wagon now hauls preschool children and, instead of a cottonfield, the place is Fischer's Fun Farm located near downtown Dallas, Tex.

Fischer, a cooperator with the Dalworth Soil and Water Conservation District, converted part of the wornout farm into a nursery-day camp in 1961. Improvements, such as playground equipment, pony rides, and crawdad ponds for lazy summer fishing, were added later. An air-conditioned game room and a concrete waterfall-wading pool for younger children are under construction now, and plans are underway for future recreation facilities.

"Parents appreciate their children getting to enjoy a rural atmosphere," Fischer says. "These kids learn to care for the animals we have, and they also become aware of the beauty of the countryside." Fischer's school bus transports the children to and from Dallas each day. In addition to the day camp, Fischer operates an antique business on weekends.

Dallas County's rapid-growing population makes recreational land and facilities of prime concern, not only for adults but for children. W. C. Fischer and Fischer's Fun Farm help meet this need.—RONNIE TIDWELL, *soil conservationist, SCS, Dallas, Tex.* ◆

**North Carolina**

## Conservation plan helps improve small farm

A soil conservation plan has been the basis of James Strickland's success in providing a comfortable living for a large family on a small farm near Mount Airy, N.C.

Strickland bought 39 acres 24 years ago, and soon found himself fighting a losing battle with erosion on his sloping fields. In the early fifties, he became a cooperator with the Surry Soil and Water Conservation District. He converted the more erodible land to pasture and hay and established a tobacco-grass rotation on the remaining cropland.

In 1956 he obtained a loan from the Farmers Home Administration, and in 1964 increased it to do more conservation work and begin a poultry enterprise. He now can grow about 50,000 broilers a year.

Grassed waterways were seeded and field borders established to protect turn areas and improve habitat. Steeper areas were seeded to grass with assistance from the Agricul-

*Left, Culpeper Golf Club's water problem. Right, Dr. Donald Pryer (left) saves a tree in building pond. With him is SCS Conservationist Jim Loe.*

tural Conservation Program in early years and later under the land-treatment phase of the Appalachian Regional Development Act. In 1967, he purchased 2 acres of adjoining land and seeded it to grass and clover.

Strickland keeps a milk cow and a few riding horses. There is a ready market nearby for all the hay he can produce.

In a swampy area he built a pond that has become a swimming, boating, and fishing center for the neighborhood.

With all this, Strickland finds time to serve as pastor for three small churches in the area.—B. F. PATTERSON, *district conservationist, SCS, Dobson, N.C.*

**Virginia**

## Golf club solves its flooding problem

For as long as 30 days at a time, playing golf at the Culpeper Country Club in Culpeper, Va., was stopped because the fairways were covered with mud and water. Large gray-brown spots, where the turf had died because of waterlogged soil, were permanent features on the fairways.

In response to an inquiry to the Culpeper Soil and Water Conservation District, I reviewed the problem on the ground with a group of members. Our observations and information from the soil survey indicated the need for a diversion ditch and about a mile of tile drains. The club became a cooperator with the district to carry out the plan.

Solid plastic pipe was used where the tile had to pass near trees to prevent roots from stopping up the system. Gravel was placed over the tile on points where water normally concentrated to speed up the drawdown of excess water.

Now members enjoy a healthy turf and can resume playing almost as soon as rain stops.—DAVID J. POE, *district conservationist, SCS, Culpeper, Va.*

**Louisiana**

## Developer starts with a conservation plan

Land developers and homeowners are finding that conservation pays them as well as it does farmers. Dr. Ronald Pryer of Pineville, La., proved it on an 18-acre tract he started to subdivide in 1966.

Pryer became a cooperator with the Lower East Red River Soil and Water Conservation District and developed a conservation plan with the help of the SCS staff. Information from a soil survey of the area was used to locate a building site for himself, a pond site, and areas for subdivision.

The pond was designed to be placed among the trees so they would not be disturbed by building equipment, or by the water.

A spring above the pond was developed to flow into a swimming pool, then into the pond. The pond was stocked with fish. In thinning trees and clearing underbrush all the flowering shrubs were left.

Pryer's home is almost completed, and he has sold several building sites. He says he is convinced people want to live where there are trees and water and a pleasant landscape. —JAMES LOE, *district conservationist, SCS, Alexandria, La.*

**New Jersey**

## Youths plant beachgrass for storm protection

Planting beachgrass on ocean-front dunes continues to catch the interest of youth groups at New Jersey's Cape May County shore resorts.

The end product of the activity—more green vegetation on dunes—speeds up Nature's sand-catching process, which builds up the dunes and improves their ability to hold back storm-driven high tides.

One day last fall, some 25 blocks in Avalon were planted to beachgrass by 250 youngsters and their leaders. Girl Scouts, Boy Scouts, and 4-H Clubs joined in the affair. Lunch was provided for the young workers and prizes awarded for the best plantings. Each group also received a cash reward for its treasury.

In a separate planting session last November, vocational agriculture

*The county agent and 4-H leader, Larry E. Newbold and Ann Wigglesworth (at left), supervised beachgrass planting at Avalon, N.J.*

*Selmer Longseth's dry well spring box. With him is SCS District Conservationist Olin Fimreite (left).*

students from the Lower Cape May Regional High School lent a hand in protecting Cape May Point, one of New Jersey's most critical beach erosion areas. The class added the protective beachgrass to 2,000 feet of the troubled dunes in that one session.—JOHN A. KROHN, *district conservationist, SCS, Berlin, N.J.*

**Wisconsin**

### A drink after 50 years from restored spring

"I remember when this farmstead got its water from a spring right here," Selmer Longseth said as we looked among the broken foundations of vanished buildings on the back of his farm.

"I'd like to find it and develop it for watering my cattle."

We could see no sign of wetness or water-related vegetation, but suggested he have the site dug out with a backhoe. The results confirmed his recollection; when 4 feet of overburden was removed the long-buried spring bubbled out.

Longseth let the spring flow for 2 months to observe its strength before proceeding to install the spring box suggested to him as a cooperator with Trempealeau County Soil and Water Conservation District.

A dry well enclosure 4 feet high and 6 feet in diameter was constructed of perforated blocks over the spring. Coarse gravel was then put around the box, allowing water to flow freely into it. A 1½ inch pipe was installed to bring water to a livestock watering tank.

"That's the first drink I've had from that spring in 50 years," he said when the job was finished.—OLIN FIMREITE, *district conservationist, SCS, Whitehall, Wis.* ◆

## Highway erosion control studied

During the next 5 years five unnamed watersheds in Cumberland County, Pa., will be used in a project to study erosion-control methods that will be tested with the construction of Interstate Highway 81.

Four of the streams lie in the construction area of part of the superhighway. The fifth stream, outside the immediate construction area, serves as a "control" for comparison of the effects of construction and conservation practices on the streams.

In each test area measurements will be made of volume and velocity of streamflow and of the amount of suspended sediment in the water. Regular checks will be made to determine stream conditions before construction. Sampling will continue for a full year after construction is completed in late 1971.

A different combination of conservation practices will be tested in each watershed: (1) Mulching and seeding during the first planting season the highway slope is completed; (2) mulching right after earthmoving begins and standard seeding during the first planting season the slope is completed; (3) use of temporary desilting basins, diversion terraces, or an advanced erosion-control measure, such as an erosion inhibiting chemical applied to exposed slopes; and (4) these measures combined with vegetative cover.

The project will be conducted jointly by the State Soil and Water Conservation Commission of Pennsylvania, Water Resources Division of the U.S. Geological Survey, and the Pennsylvania Department of Highways. The Soil Conservation Service serves in an advisory capacity. ◆

# Ponds bring change from general farming to specialty crops

*Four irrigation pumps fed by this pond move 1,200 gallons a minute. Each provides frost protection for 60 acres of strawberries.*

**By Marvin Hansen and Phillip Boots**
Area conservationist and district conservationist, SCS, Traverse City and Onekama, Mich.

Some 500 new farm ponds in Manistee County, Mich., are enabling farmers to change from the old general farm, which was a little of everything but not enough of anything, to high-value specialty crops like strawberries, potatoes, and small vegetables.

The first ponds were built for trout production. Now they are being designed for irrigation, frost control during the strawberry blossoming period, and air temperature control while berries are ripening.

**Equipment sales**

Ponds are being enlarged to accommodate larger equipment and allow for the irrigation of more acres. One dealer estimates that $4.5 million worth of irrigation equipment has been sold in Manistee County in the last 10 years. Cherryland Rural Electric and Consumers Power Company are expanding their services to provide three-phase power for irrigation.

Increased supply and lower cost of water have stimulated the berry business. Strawberry acreage has increased from 15 acres in the late 1940's to more than 1,000 acres today.

**More jobs, too**

Job opportunities and local economy have grown, too. Four to five thousand extra people are needed during harvest season. Another 500 pair of hands are required to process the output of the county's million dollar berry business.

Potato and small vegetable acreages are also increasing. A new potato co-op recently completed a building in Copemish, Mich., that holds 200,000 bushels.

The average cost of a typical pond is $1,500. Many have been cost-shared with funds from the Agricultural Conservation Program. The Soil Conservation Service furnished technical assistance on feasibility and design through the Manistee County Soil Conservation District. ◆

**Workers pack some of the strawberries grown on an irrigated farm that yielded more than 700 cases per acre.**

*Review . . .*

## Ecotactics: Where the action is

**The Environmental Handbook.** EDITED BY GARRETT DE BELL. *1970. Ballantine Books, New York. 367 pp.; paper. $0.95. A Ballantine/Friends of the Earth Book, prepared for the first National Environmental Teach-in.*

**Ecotactics. The Sierra Club Handbook for Environmental Activists.** EDITED BY JOHN G. MITCHELL AND CONSTANCE L. STALLINGS. *1970. Pocket Books, New York. 288 pp.; paper. $0.95.*

These two books, quickly put together in preparation for the series of environmental forums ("teach-ins") held on college and high school campuses in April, convey a sense of serious purpose and urgency that leaves no doubt that young people are concerned to the point of action about deterioration of the human environment. Naturally, the books show the unevenness of content that is inevitable in such an effort.

Both books consist of a collection of articles, some brief and some longer, some emotional and others reasoned and deliberate, that state the case against pollution of the environment and suggest a variety of countermeasures.

*The Environmental Handbook* is substantially laden with reprints of sober articles and excerpts from books by such distinguished scientists and authors as Lewis Mumford, Kenneth E. Boulding, Rene Dubos, Garrett Hardin, Lynn White, Jr., and Paul R. Ehrlich. These are set in a matrix of brief, off-the-cuff pieces by the young people carrying the argument of the current environmental campaign. The book contains sections on suggested "ecotactics" of individual action and political action, and well-chosen lists of books and films on human ecology and related subjects.

*Ecotactics* consists of a collection of original writings by a variety of authors, some of them students. It, too, has a bibliography, called "the activist's bookshelf;" rosters of conservation and professional organizations and government agencies; a directory of chairmen of strategic congressional committees; and, of course, a Sierra Club directory and list of its films.

Conservationists must be gratified by the sudden awakening of the public to concern about the way we use our resources. The extent of that concern is indicated by the sale of these two books. The first, issued in January, was in its second printing in February.

Whatever one's judgment may be of the factual basis of specific statements or of the soundness of some of the tactics proposed, he needs to read these two books as soon as possible to be aware of the latest turn of the conservation movement in America—B. O. O.

## Urban environment

**The Quality of the Urban Environment.** EDITED BY HARVEY S. PERLOFF. *1969. Resources for the Future, Washington, D.C. (distributed by The Johns Hopkins Press, Baltimore). 332 pp.; paper. $6.50.*

A collection of essays on "new resources" in an urban age, prepared for a conference on urban environment sponsored by Resources for the Future, provides a useful sampling of some of the newer thinking in this field of resource use.

Editor Perloff, in an introductory statement setting the framework for the discussion, argues for an extension of the concept of resources. Rather than being limited to the elements of the natural environment needed for the production of commodities, resources in the modern setting include any "needed elements . . . that are in relatively short supply." These, he says, include "relatively pure air and water, three-dimensional space (including airway space, radio-spectrum space, city land, and underground space), and valued amenity features . . . in our crowded urban age, these are resources that count."

A second concept that can contribute to support for effective public policies "is a view of the urban environment as a contained (but not closed), highly interrelated system (or subsystem) of natural and manmade elements in various mixes."

Against this background, a distinguished group of authors discuss pollution and environmental quality; contained urban space; open (uncovered) space; amenity resources; transport; the value of urban land; location, size, and shape of cities; and behavioral patterns of time and space use—B. O. O.

**Using Commercial Fertilizers.** BY MALCOLM H. MCVICKAR. *1970. 3d. ed. Interstate Printers and Publishers, Danville, Ill. 352 pp., illus. $8.50.*

The third edition of this well-known book is considerably expanded over the second. There are three new chapters, dealing with bulk blending, fertilizer efficiency, and soil amendments. The entire book has been updated to reflect new advancements made in the use of fertilizers during the past 9 years.

This book contains much information on the amount of fertilizer used in the United States and changes in the different plant nutrients. For example, since 1958 the use of nitrogen has increased more than other nutrients and is expected to reach 12.5 million tons by 1980, or twice as much as phosphate or potash.

There is a good glossary of terms relating to fertilizers and a complete listing of major fertilizer plants in the United States.

This is an excellent reference book for students, conservationists, and farmers on the many aspects of fertilizer use and plant needs.—B. D. BLAKELY, *head agronomist, SCS, Washington, D.C.*

## Soil surveys

**Torrance Area, New Mexico.** BY BOB G. BOURLIER, R. E. NEHER, D. B. CREZEE, K. J. BOWMAN, AND D. W. MEISTER. *1970. 149 pp., illus.; map 2 inches to the mile (1:31,680).*

**Curry Area, Oregon.** BY CHARLES R. BUZZARD AND CLYDE C. BOWLSBY. *1970. 70 pp., illus.; maps 3.17 inches to the mile (1:20,000).* Fieldwork by Gene K. Brinneman, Oscar P. Mueller, and Charles R. Buzzard.

**Antelope Valley Area, California.** *1970. 187 pp., illus.; maps 2⅝ inches to the mile (1:24,000).* Fieldwork by George A. Woodruff, William J. McCoy, and Wayne B. Sheldon. ◆

### Western water outlook is good—and bad

Outlook for water supply in the Western States appears to be adequate except for parts of the Southwest, according to the March snow survey report.

Reservoir storage was average or above in all states but Washington and should supply adequate water for major irrigated areas. Water users who rely on natural streamflow, however, can expect late-season shortages in some areas. Considerable pumping from groundwater storage can be expected for the Gila River in New Mexico and Arizona to supplement low streamflow. ◆

### RC&D Project expanded

The Penn-Soil Resource Conservation and Development Project in Pennsylvania has been expanded to include Erie County, adding more than a half-million acres to the original 1.5-million-acre project area. ◆

*Meetings . . .*

## Audubon Society to question 'progress'

A pointed question, "What is progress?," will be the central concern of the annual convention of the National Audubon Society at Seattle, Wash., May 14-18. It will be echoed in a discussion offering the points of view of ecologists and technologists featuring a panel drawn from many disciplines.

Membership in the National Audubon Society now involves more than 100,000 individuals. To better service its membership, the society is sponsoring a workshop for chapter leaders, regional field staff, and others in conjunction with the convention. Workshop sessions come before and after the convention program.

## Garden Club promotes conservation

The Garden Club of America will hold its annual meeting in Boston, Mass., May 11-14. It is not open to the public.

Organized in 1913, there are now 177 clubs with about 12,000 members. Purpose of the club is to promote gardening, horticulture, and all phases of conservation. The Conservation Committee assembles and distributes an educational packet. The club is represented on the Advisory Council of the USDA National Arboretum in Washington, D.C.

## Women voters take stand on resource conservation

The League of Women Voters national convention in Washington, D.C., May 4-8, will bring together some 2,000 women delegates, at least one from each of the 1,257 local leagues throughout the country.

To celebrate its anniversary, the league has launched a year-long campaign focusing on the right to vote as the basis for American democracy.

Issues to be decided at the convention are what stands the league will take on legislative action to conserve natural resources; foreign policy, including expansion of world trade and economic aid to underdeveloped countries; ways to expand equal opportunity in jobs, education, and housing for all Americans; and reform of state and local governments.

## Garden Clubs to discuss tomorrow . . .

The National Council of State Garden Clubs will hold its annual meeting in Chicago, Ill., May 17-21.

The theme is "The Shape of Tomorrow," with subthemes for each day: "Tomorrow is Today;" "Tomorrow's Heartbeat;" "Tomorrow's Tempo;" and "Tomorrow-Tomorrow-Tomorrow."

## Dates and places

**May 3-6,** Soil Stewardship Week
**4-7,** National Forest Products Association, Washington, D.C.
**4-8,** League of Women Voters of the U.S., Washington, D.C.
**6-8,** Forest Farmers Association sponsoring Southern Forestry Conference, Mobile, Ala.
**10-15,** International Science Fair, Baltimore, Md.
**11-14,** The Garden Club of America, Boston, Mass.
**14-18,** National Audubon Society, Seattle, Wash.
**17-21,** National Council of State Garden Clubs, Inc., Chicago, Ill.

**June**
**7-10,** National Watershed Congress, Denver, Colo.
**7-12,** General Federation of Women's Clubs, San Antonio, Tex.
**14-18,** Air Pollution Control Association, St. Louis, Mo.
**15-19,** American Water Resources Association, Urbana, Ill.
**20-26,** Outdoor Writers Association of America, Inc., Coeur d'Alene, Idaho.
**21-25,** The American Institute of Architects, Boston, Mass.
**21-26,** American Water Works Association—National Symposium on Hydrobiology, Washington, D.C.
**29-July 2,** American Seed Trade Association, Lake Tahoe, Nev.
**30-July 2,** Federal and State Water Officials, Charleston, S.C. ◆

# Recon . . .

**A quick overview of the conservation scene**

**Six in 10 adults** in the Nation's metropolitan centers would move to less urbanized areas if they could live anywhere they wished, according to a February 1970 Gallup Poll. The other four like it where they are. Almost one-third of those questioned would prefer living in a small town — the same percentage as found in an identical survey in 1966.

**Montana SCS snow-survey records have been reinterpreted** to help developers determine the feasibility of winter resorts in mountainous areas. Records of snow depth and water content already being kept for western water supply forecasts provided data needed to formulate these criteria for potential ski areas:

—From 12 to 18 inches of new snow or 4 to 6 inches of packed snow (about 2 inches snow water equivalent) is desirable as a minimum for skiable snow.

—These amounts of snow should be available for skiing by mid-December in 18 or 19 years out of 20.

Using these criteria, the Montana survey team prepared maps and overlays in response to increasing demand for this kind of technical guidance.

**A modern version of the Civilian Conservation Corps** described in a recent issue of *Cry California* would put all capable, willing Americans in a federally controlled talent pool. The proposed Conservation Action Corps would complement rather than duplicate work of existing agencies that are "uniformly understaffed and overworked." Experts and amateurs of varied ages and skill requested on loan from the Federal Government could be assigned through field offices. State and local organizations in need of help might also contract with educational institutions. (In light of current manpower shortages in conservation districts, the CAC or something like it would help bridge the gap between the amount of work and the number of workers.) Some suggested functions are: monitor air and water pollution levels; check compliance with subdivision regulations; improve drainage and control runoff and erosion on public lands; and remove litter.

### GNQ over GNP

> Pollution controls will require a new 'ecological ethic' which would change the nature of the United States consumer society. There is a great need and growing support for the introduction of new values in our society—where bigger is not necessarily better, where slower can be faster, and where less can be more . . . whereby this country puts Gross National Quality above Gross National Product—SENATOR GAYLORD NELSON OF WISCONSIN.

**The decorative, protective effects of tropical plant materials** are beginning to register at the Mayaguez Hilton Hotel in western Puerto Rico. Specially selected island vegetation and a children's fishing lake are key elements of a landscape design being developed with SCS assistance. In response to a request from the hotel management, Caribbean area conservationists studied the soils and topography of a 2-acre project area and prepared a conservation plan. Regional and local plant materials specialists provided additional advice on plant culture in tropical gardens around the new lake. The project is expected to be completed this summer.

**Thousands of playa lakes** on the High Plains of Texas lose as much as 1.5 million acre-feet of water each year by evaporation, says Cecil H. Wadleigh, director of Soil and Water Conservation Research Division, Agricultural Research Service. Water that might otherwise recharge ground-water supplies cannot seep through layers of fine sediment covering the bottoms of these shallow lakes.

**A new regrassing technique for arid rangelands** is being developed in New Mexico. C. H. Herbel, a range scientist with the Agricultural Research Service, has used a mulch of uprooted range brush to establish grass effectively and economically on depleted brushy range. Apparatus created by engineer G. H. Abernathy of the New Mexico Agricultural Experiment Station plays a key role in the system described in the January issue of *Agricultural Research*.

**Some California Creeks** that used to be dry by June stay wetter longer now that their tree- and brush-covered watersheds have been converted to grass. Water yield has increased by an average of 50 percent per season. Professor H. Burgy of the Department of Water Science and Engineering sees better vegetation management on semiarid foothill land as a way to boost state water supplies. Conversion to grass costs 20 times less than sea-water conversion for the same amount of water produced on site. Water and range researchers with the University of California at Davis are checking the long-term effects of conversion on plant growth, livestock values, and soil erosion.

*From the Administrator:*

# Resources and renewal

There is a new America every day, as new highways, new homes, and new shopping centers replace the remembered farms and vacant lots of yesterday.

A onetime wheatfield may have gone to pasture; a cornfield to buildings; a marsh transformed into a swimming lake or water reservoir. Good, bad, planned, or haphazard —changes in our physical environment and use of land and water are accelerating. Growing along with them is a growing concern by nonfarm citizens for quality of the environment.

These men and women are concerned, and rightfully so, with the problems that stem from unplanned and disorderly development. They experience the results of flooding, excess erosion, sedimentation, and air and water pollution. They see a lowering in their quality of living. Why, they ask, can't something be done?

Something can be done. For three decades, the Soil Conservation Service has assisted farmers and ranchers who faced similar problems on rural land—and who **did** something about them.

Building on the work of pioneer conservationists, SCS developed the principles, practices, and expertise needed for the rational development of rural land in a manner consistent with both the land's capabilities and the Nation's needs. Methods to control erosion, reduce flooding, remove excess water, and protect an area's natural beauty were tested and proved. These same conservation and land use principles and methods, with slight adjustment, are applicable to urbanizing lands.

Some of the principles are:

(1) Plan land uses that will minimize the potential problems of erosion, sedimentation, high water tables, and flooding, being mindful that as urban structures—houses, streets, and shopping centers—cover much of the soil, runoff and flooding increase, and pleasant little streams can become raging torrents;

(2) Use soil surveys as a basic source of information for land use decisions;

(3) Gather and interpret other pertinent resource information, such as data about the topography, geology, and flood history of the region;

(4) Plan and install conservation measures that are both effective and economically feasible;

(5) Minimize the time bare soils are left exposed and vulnerable to accelerated erosion;

(6) Use trees, grass, and other permanent vegetation as much as possible but be aware of their limitations;

(7) Apply artificial protective cover, such as mulches, or establish quick-growing vegetation on land areas temporarily exposed to wind and water erosion;

(8) Limit the steepness and length of cut and fill slopes, both to avoid the concentration of runoff water and to facilitate establishing and maintaining good vegetative cover;

(9) Provide for the orderly disposal of storm water without erosion or flooding;

(10) Use dams and other mechanical controls, when needed, to help trap sediment unavoidably dislodged during construction;

(11) Provide for the protection and improvement of natural beauty as an integral part of conservation.

These principles, tried and proved in the Nation's soil conservation districts, need to be more generally recognized and put into use in urbanizing and builtup areas as well.

**All** Americans must realize that maintaining the quality of our resources, and of our total environment, is quite literally a part of the "cost of living."

Kenneth E. Grant

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# Garden club project attracts songbirds

Wild songbirds come to Hazardville, Conn., in greater numbers now that food abounds for them around homes.

In early 1968, several Hazardville Garden Club members became interested in community beautification and inquired of the Soil Conservation Service about shrubs suitable for planting in their area. Cardinal autumn olive, they were told, produces abundant berries that remain on the bush well into winter and on which songbirds and other wild birds thrive.

By spring, the garden club distributed autumn olive plants to 500 third graders of Enfield Schools. The Hartford County Soil and Water Conservation District office in Warehouse Point instructed the students on how to plant autumn olive.

In Hazardville, as elsewhere, housing developments are often landscaped with trees and shrubs that offer birds ample cover, but little or no food. When landscaping includes shrubs that fruit at various intervals, residential areas can become bird sanctuaries.

The garden club's planting project was so successful that the club repeated it in 1969 and 1970. Similar projects are easily undertaken by garden clubs, conservation groups, 4-H clubs, Scouts, and other organizations.

*Seedlings, planted by these Connecticut youths, get good treatment, including mulching with wood chips.*

Hazardville's songbirds are not the only beneficiaries of community beautification. The townspeople also enjoy an improved urban environment achieved without undue effort or expense. Most important, many feel, is the firsthand knowledge the school children are receiving in conservation.

Regardless of viewpoint, the project has already illustrated an excellent way to involve the public in local conservation programs.—ARTHUR B. CROSS, *district conservationist, SCS, Warehouse Point, Conn.* ◆